Docket No.: 1163-0299P
(PATENT)

IN THE U.S. PATENT AND TRADEMARK OFFICE

In re Patent Application of: Shunichi SEKIGUCHI et al.	**Before the Board of Appeals**
Application No.: 09/692,720	Confirmation No.: 5613
Filed: October 20, 2000	Art Unit: 2613
For: VIDEO DECODING METHOD PERFORMING SELECTIVE ERROR CONCEALMENT AND RESYNCHRONIZATION	Examiner: Nhon Thanh Diep

APPEAL BRIEF

MS Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

September 18, 2006

Sir:

As required under § 41.37(a), this brief is being filed after the filing of the Notice of Appeal, and is in furtherance of said Notice of Appeal filed June 19, 2006.
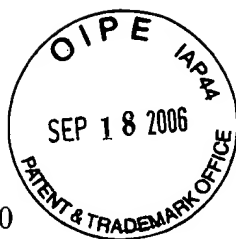
The fees required under § 41.20(b)(2), and any required petition for extension of time, if applicable, for filing this brief and fees related thereto, are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

This brief contains items under the following headings as required by 37 C.F.R. § 41.37 and M.P.E.P. § 1206:

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APPEAL BRIEF ON BEHALF OF APPELLANTS: Shunichi SEKIGUCHI et al..

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Sir:

I. REAL PARTY IN INTEREST

The real party in interest for this application is the Assignee, Mitsubishi Denki Kabushiki Kaisha, 2-3, Marunouchi 2-chome, Chiyoda-ku, Tokyo, 100-8310, Japan.

II. RELATED APPEALS AND/OR INTERFERENCES

There are no related appeals or interferences that will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III.   STATUS OF CLAIMS

Claims 2, 5, and 24-30 are currently pending in this application. Claims 2 and 5 are independent claims. Claims 2, 5, 24, and 25 stand rejected under 35 U.S.C. § 102. Claims 3 and 26-30 stand rejected under 35 U.S.C. § 103.

IV.   STATUS OF AMENDMENTS

An After Final Amendment was submitted June 19, 2006 to incorporate the features of dependent claim 3 into independent claim 2 and to correct a typographical error in claim 29. The Examiner has denied entry of this After Final Amendment. (See Advisory Action, July 6, 2006).

V.   SUMMARY OF THE CLAIMED SUBJECT MATTER

In one aspect, the claimed invention is a video decoding method for decoding a coded video stream. (Fig. 8; page 25, lines 7-8). The video decoding method receives a coded video stream, together with an error detection result indicating whether an error is contained in a coded stream in each packet. (Page 21, lines 18-27). The coded video stream is composed of plural pieces of compressed block coded data, which are composed of plural kinds of data elements. (Fig. 3A-Fig. 3B; page 18, line 26 - page 19, line 14). Data elements of the same kind are arranged in succession over plural blocks, and the coded video stream is divided, at the point of change in the kind of data elements arranged in succession, into each packet. (Fig. 4; page 19, line 15 - page 20, line 2). Each packet is provided with an error detecting code for obtaining an error detection result. (Fig. 4; page 20, lines 16-21). Upon detecting a decoding error, the position of the decoding error in the coded video stream is decided based on a received error detection result, and error concealment is selectively performed based on the decided position of the decoding error. (Page 24, line 10 - page 25, line 6).

According to an aspect of the present invention, plural kinds of data elements (of the compressed block coded data) contain a data stream composed of motion vectors and a data

stream composed of pieces of texture data. (Fig. 3B; page 19, lines 8-14). Based on the error detection result received together with each data stream and the position of the decoding error detected in the decoding of each data stream, the video decoding method decides whether to perform error concealment using decoded motion vectors or abandon the motion vectors and the texture data and perform error concealment. (Page 25, lines 9-27).

According to another aspect of the invention, the plural kinds of data elements include coded macro block DCT coefficient data and motion vector data, and the coded video stream is divided into packets at points of change in the kind of data elements so that motion vector data is provided in separate packets than macro block DCT coefficient data. (Fig. 4). Based on the error detection result received for a packet containing motion vector data, the method abandons corresponding coded macro block DCT coefficient data and performs error concealment. (Page 25, lines 24-27).

According to another aspect, the present invention is a video decoding method, which receives a coded video stream together with an error detection result indicating whether an error is contained in a coded stream in each packet, and decodes the coded video stream. The coded video stream is composed of plural pieces of compressed block coded data, and for each of compressed block coded data of plural blocks, header information is coded which contains a unique code indicating the head of each block coded data and its block number. (Fig. 3A; page 18, line 26 - page 19, line 7; Fig. 9; page 28, lines 17-22). The coded video stream is divided into packets at the point of change between the header information and the block coded data, the packets being added, for each of said plural video segments, with an error detecting code for obtaining said error detection result. (Fig. 4; Fig. 10; page 29, lines 4-14). Upon detecting a decoding error during decoding of the coded video stream received for each packet, the position of resynchronization is decided based on the unique code and the error detection result received together with coded data of the header information and resynchronization is performed from the bit position of error detection to a unique code indicating the beginning of the next block coded data. (Fig. 12; page 31, lines 4-12).

VI.   GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The Final Office Action provides the following grounds of rejection for review on appeal:

1. Claims 3 stands rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Matsumura (U.S. Patent 5,835,144); and

2. Claim 5 stands rejected under 35 U.S.C. § 102 as allegedly being anticipated by Matsumura.[1]

VII.   ARGUMENTS

A.   Issue 1: The Examiner's Rejection Under 35 U.S.C. § 103(a) Based on Matsumura, as Applied to Claim 3, Fails to Establish *Prima Facie* Obviousness

1.   Argument Summary

The reasoning provided in support of the rejection of claim 3 under 35 U.S.C. §103 as allegedly being unpatentable over Matsumura fails to establish *prima facie* obviousness. Specifically, the rejection is deficient for failing to provide any teaching for claimed features that the Examiner acknowledges are absent in Matsumura, and for relying on improper hindsight reasoning to allege that certain modifications of Matsumura would have been obvious to one having ordinary skill in the art.

2.   Legal Requirements of *Prima Facie* Obviousness

To establish *prima facie* obviousness, all claim limitations must be taught or suggested by the prior art and the asserted modification or combination of the prior art must be supported by some teaching, suggestion, or motivation in the applied references or in knowledge generally

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[1] Although claim 2 also stands rejected under 35 U.S.C. § 102, Appellants intend to focus on the features of dependent claim 3 in combination with its base claim 2 (consistent with the After Final Reply filed June 19, 2006). Therefore, Appellants do not seek review of the rejection of claim 2 (or claims 4 and 24-30 depending therefrom).

available to one skilled in the art. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). The prior art must suggest the desirability of the modification in order to establish a *prima facie* case of obviousness. *In re Brouwer*, 77 F.3d 422, 425, 37 USPQ2d 1663, 1666 (Fed. Cir. 1995). It can also be said that the prior art must collectively suggest or point to the claimed invention to support a finding of obviousness. *In re Hedges*, 783 F.2d 1038, 1041, 228 USPQ 685, 687 (Fed. Cir. 1986); *In re Ehrreich*, 590 F.2d 902, 908-909, 200 USPQ 504, 510 (C.C.P.A. 1979). When considering the differences between the primary reference and the claimed invention, the question for assessing obviousness is not whether the differences themselves would have been obvious, but instead whether the claimed invention as a whole would have been obvious. *Stratoflex Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983). Thus, to establish *prima facie* obviousness, the Examiner has the burden of satisfying the following three basic criteria: (1) the prior art must teach or suggest all of the claim limitations; (2) there must be a reasonable expectation of success; and (3) there must be some suggestion or motivation, either in the art or in knowledge generally available to one having ordinary skill in the art, to modify the references or to combine teachings. MPEP § 2143.

**3.   The Rejection Fails to Establish *Prima Facie* Obviousness
         of Claim 3**

        Claim 3 is directed to a video decoding method for decoding a coded video stream. The video decoding method of claim 3 receives a coded video stream, together with an error detection result indicating whether an error is contained in a coded stream in each packet. The coded video stream is composed of plural pieces of compressed block coded data, which are composed of plural kinds of data elements. Data elements of the same kind are arranged in succession over plural blocks, and the coded video stream is divided, at the point of change in the kind of data elements arranged in succession, into each packet. Each packet is provided with an error detecting code for obtaining an error detection result. Claim 3 (as depending from claim 2) specifies that:

>   upon detecting a decoding error...the position of said decoding error in said
>   coded video stream is decided based on an error detection result received

and ~~error concealment is selectively performed based on said decided position of said decoding error~~. (emphasis added).

Claim 3 further specifies that the plural kinds of data elements (of the compressed block coded data) contain a data stream composed of motion vectors and a data stream composed of pieces of texture information; and further specifies that:

> based on said error detection result received together with each data stream and the position of said decoding error detected in the decoding of said each data stream, it is decided whether to perform error concealment using decoded motion vectors or abandon said motion vectors and said texture data and perform error concealment.

The Examiner acknowledges that this feature is not taught by Matsumura. (See Final Office Action dated December 19, 2005, pg. 6, lines 7-26). On page 3 of the Final Office Action, however, the Examiner provides the following reasoning to reject claim 3:

> The examiner interprets the above limitation as that error concealment is performed with or without using motion vector and in the 103 rejection, it is reasoned that, since Matsumura et al teaches inter frame prediction and motion compensation and because when error occurred in the variable-length decoding, ~~there is a fair chance~~ that error contaminates the motion vector and if that is the case, motion vector and associated texture data ~~should be~~ abandon in any following error concealment effort to avoid further error propagating or, if error does not contaminates motion vector, then use decoded motion vector. (emphasis added).

This reasoning fails to establish *prima facie* obviousness. Initially, the Examiner's reasoning detailed above is not based on any teaching of Matsumura (or any other evidence of record), and instead appears to be the result of mere speculation regarding what the prior art "should" do. There is simply no evidence to support the conclusion that the admitted deficiency of Matsumura is taught in the prior art or generally known by those having ordinary skill in the art. To establish *prima facie* obviousness, the Examiner bears the burden of providing factual and evidentiary support for the rejection. See MPEP §2141 (detailing the Examiner's evidentiary burden). Such factual and evidentiary support is clearly lacking with respect to the rejection of claim 3 under 35 U.S.C. §103. At least for this reason, the rejection should be withdrawn.

Still further, even if the Examiner were prove that the admitted deficiency of Matsumura is present in the prior art, the rejection fails to show a suggestion or motivation in the prior art to modify the decoding system of Matsumura in a manner that satisfies all features of claim 3, considered as a whole. Therefore, the rejection appears to rely on improper hindsight reasoning.

B.   Issue 2: The Examiner's Rejection Under 35 U.S.C. § 102 Based on Matsumura, as Applied to Independent Claim 5, Fails to Establish Anticipation

1.   Argument Summary

The reasoning provided in rejecting independent claim 5 under 35 U.S.C. § 102 as allegedly being anticipated by Matsumura fails to establish anticipation. Specifically, the deficiencies of the rejection are at least that the rejection misinterprets teachings of the applied reference.

2.   Legal Requirements of Anticipation

According to MPEP § 2131, "a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claims." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913 (Fed. Cir. 1989).

3.   The Rejection Fails to Establish Anticipation of Independent Claim 5

Independent claim 5 is directed to a video decoding method that receives a coded video stream together with an error detection result indicating whether an error is contained in a coded stream in each packet. Claim 5 specifies that the coded video stream is composed of plural pieces of compressed block data and coded header information contains a unique code indicating the head of each block coded data and its block number. The coded video stream is divided into packets at a

point of change between the header information and the block coded data, and the packets are provided with an error detecting code for obtaining an error detection result. Independent claim 5 specifies that:

> upon detecting a decoding error during decoding of said coded video stream received for each packet, the position of resynchronization is decided based on said unique code and said error detection result received together with coded data of said header information and resynchronization is performed from the bit position of error detection to a unique code indicating the beginning of the next block coded data. (emphasis added).

In alleging that Matsumura anticipates claim 5, the rejection cites column 8, line 40 – column 9, line 12. (See Final Office Action dated December 19, 2005, page 4). Although this cited portion of Matsumura supports the conclusion that the video decoder described therein performs resynchronization, Appellants note that this portion of Matsumura refers to decoding operations performed after resynchronization, wherein Matsumura utilizes a self-resynchronizing variable-length code. See e.g., column 7, lines 42-56. The cited portion of Matsumura does not relate to a technique for deciding a position of resynchronization as specified in claim 5. Consequently, the video decoding apparatus of Matsumura does not perform resynchronization in the manner recited in claim 5.

At least for this reason the rejection of claim 5 under 35 U.S.C. §102 should be withdrawn.

VIII. CLAIMS

A copy of the claims involved in the present Appeal are attached hereto as Appendix A.

IX. EVIDENCE

There is no additional evidence pursuant to §§ 1.130, 1.131, or 1.132 and/or evidence entered by or relied upon by the examiner that is relevant to this appeal as noted in Appendix B.

X.   RELATED PROCEEDINGS

No related proceedings are referenced in II. above, and thus, no copies of decisions in related proceedings are provided.
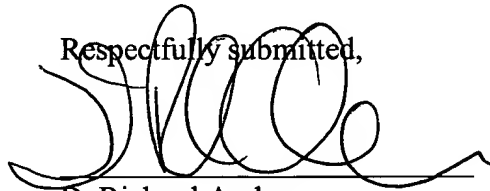
XI.   CONCLUSION

The withdrawal of the appealed rejections is earnestly solicited.

The Commissioner is hereby authorized to charge any appropriate fees under 37 C.F.R. §§ 1.16, 1.17, and 1.21 that may be required by this paper and to credit any overpayment to Deposit Account No. 02-2448.

Dated: September 18, 2006   Respectfully submitted,

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APPENDIX A

Claims Involved in the Appeal of Application Serial No. 09/692,720 are as follows:

2. (Original) A video decoding method which receives a coded video stream, together with an error detection result indicating whether an error is contained in a coded stream in each packet, and decodes said coded video stream, wherein:

said coded video stream is composed of plural pieces of compressed block coded data, said plural pieces of compressed block coded data are composed of plural kinds of data elements, said data elements of the same kind are arranged in succession over plural blocks, and said coded video stream is divided, at the point of change in the kind of said data elements arranged in succession, into said each packet, said each packet being added, for each of said divided video coded streams, with an error detecting code for obtaining said error detection result;

and upon detecting a decoding error at the time of receiving and decoding said coded video stream for said each packet, the position of said decoding error in said coded video stream is decided based on an error detection result received and error concealment is selectively performed based on said decided position of said decoding error.

3. (Original) The video decoding method of claim 2, wherein: said plural kinds of data elements contain a data stream composed of motion vectors contained in plural blocks and a data stream composed of pieces of texture information contained in plural blocks; and, based on said error detection result received together with each data stream and the position of said decoding error detected in the decoding of said each data stream, it is decided whether to perform error concealment using decoded motion vectors or abandon said motion vectors and said texture data and perform error concealment.

5. (Original) A video decoding method which receives a coded video stream, together with an error detection result indicating whether an error is contained in a coded stream in each packet, and decodes said coded video stream, wherein: said coded video stream is composed of

plural pieces of compressed block coded data, and for each of said compressed block coded data of plural blocks, header information is coded which contains a unique code indicating the head of said each block coded data and its block number, and said coded video stream is divided into packets at the point of change between said header information and said block coded data, said packets being added, for each of said plural video segments. with an error detecting code for obtaining said error detection result; and

upon detecting a decoding error during decoding of said coded video stream received for each packet, the position of resynchronization is decided based on said unique code and said error detection result received together with coded data of said header information and resynchronization is performed from the bit position of error detection to a unique code indicating the beginning of the next block coded data.

24. (Previously Presented)   The video decoding method of claim 2, wherein said plural kinds of data elements include coded macro block DCT coefficient data and motion vector data.

25. (Previously Presented)   The video decoding method of claim 24, wherein said coded video stream is divided into packets at points of change in the kind of said data elements so that motion vector data is provided in separate packets than macro block DCT coefficient data.

26. (Previously Presented)   The video decoding method of claim 25, wherein, based on the error detection result received for a packet containing motion vector data, said method abandons corresponding coded macro block DCT coefficient data and performs error concealment.

27. (Previously Presented)   The video decoding method of claim 26, wherein said plural kinds of data elements further include coded video packet header data.

28. (Previously Presented)   The video decoding method of claim 27, wherein, based on

the error detection result received for a packet containing video packet header data, said method abandons corresponding coded macro block DCT coefficient data and performs error concealment.

29. (Previously Presented)   The video decoding method of claim 27, wherein, said method performs error concealment for a packet containing coded macro block DCT coefficient data using motion information when a decoding error did not occur for the motion information.

30. (Previously Presented)   The video decoding method of claim 26, wherein said plural kinds of data elements further include a resynchronization marker, which is detected during decoding to indicate the beginning of the next block coded data.

APPENDIX B

There is no additional evidence pursuant to §§ 1.130, 1.131, or 1.132 and/or evidence entered by or relied upon by the examiner that is relevant to this appeal.

APPENDIX C

There are no related proceedings.